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ABSTRACT

To what extent do perceptions of aging vary across social strata? Previous research provides inconsistent findings, although it seems plausible that attitudes toward old age differ with age, social class, and ethnicity of respondents. However, issues of measurement (construct validity; reliability; dimensional equivalency) raise doubts on the applicability of items and scales used across different groups. In the present study, data from 1,269 individuals of three ethnic groups and three age cohorts are examined for contrasts in perceptions of aging. Initial assessment of two simple summary scales indicated serious problems of cross-group equivalency judged by standard criteria for reliability and validity. A second stage of analysis revealed two orthogonal dimensions, Negative Attributes vs. Positive Potentials, which could be justified as operating similarly across strata. Results indicate high similarity by age, sex, and ethnicity in Negative Attributes, with all groups having moderately high negative evaluations. In contrast there were significant stratum variations in the Positive Potential scale, with the oldest age group and Mexican Americans having the lowest evaluation. (Author)

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MEASURING PERCEPTIONS OF AGING ACROSS SOCIAL STRATA[1]

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Abstract

To what extent do perceptions of aging vary across social strata? Previous research provides inconsistent findings, although it seems plausible that attitudes toward old age differ with age, social class, and ethnicity of respondents. However, issues of measurement (construct validity; reliability; dimensional equivalency) raise doubts on the applicability of items and scales used across different groups. In the present study, data from 1,269 individuals of three ethnic groups and three age cohorts are examined for constrasts in perceptions of aging. Initial assessment of two simple summary scales indicated serious problems of cross-group equivalency judged by standard criteria for reliability and validity. A second stage of analysis revealed two orthogonal dimensions, Negative Attributes vs. Positive Potentials, which could be justified as operating similarly across strata. Results indicate high similarity by age, sex, and ethnicity in Negative Attributes, with all groups having moderatly high negative evaluations. In contrast there were significant stratum variations in the Positive Potential scale, with the oldest age group and Mexican Americans having the lowest evaluation.

[1]Paper presented at the annual meetings of the Gerontological Society, New York, October 15, 1976. Data reported here are from the University of Southern California "Social and Cultural Contexts of Aging" research program (V. L. Bengtson, Principal Investigator; P. K. Pagan, Project Director). This program is supported by grants from the National Science Foundation's RANN program (grant #APR 75-21178) and the UPS Foundation. Conclusions are those of the authors and do not necessarily reflect the views of the sponsoring agencies.

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MEASURING PERCEPTIONS OF AGING ACROSS SOCIAL STRATA

Perceptions of aging represented the focus of some of the earliest social-psychological investigations within gerontology (see Dinkel, 1944; Simmons, 1945; Havighurst & Albrecht 1954; Tuckman & Lorge, 1952). Recently there has been a resurgence of interest in the topic of how old age and the elderly as a social category are evaluated and defined, by the public at large and by older individuals themselves (Kaplan & Pokorney, 1970; McTavish, 1971; Bennett & Eckman, 1973; Cordon & Vinake, 1971; Bell & Stanfield, 1973; Thorson, Whatley, & Hancock, 1974; Harris, 1975; Brubaker & Powers, 1976; Kilty & Field, 1976). While the new studies have added much new information concerning attitudes toward and evaluations of the elderly, they also suggest some important methodological issues which question some of the previous substantive findings.

Social scientists frequently attempt to measure orientations or perceptions across various social categories of respondents, testing hypotheses of difference across strata in such orientations. In survey research, for example, it is usually assumed that the scales or items employed represent equivalent stimuli across groups of respondents: that blacks and whites, or middle-aged and elderly subjects, have similar cognitive sets toward the questions presented them. Whether such an assumption is justified is, unfortunately, seldom tested with regard to perceptions of aging. Issues of measurement adequacy (construct validity; reliability; dimensional equivalency) raise concern as to the applicability of scales or items when used across various groups of respondents.

The general interest of this research is to examine variations in perceptions of aging across contrasting social strata: groups defined by ethnicity, age, and sex. The specific focus of this paper concerns the measurement of orientations toward aging. Prior to the testing of substantive questions regarding whether aging is perceived differently by various ethnic groups, for example, it is necessary to demonstrate that the groups are reacting to common stimuli in making their evaluations. This requires a close examination of construct definition and operationalization, the internal consistency of measures, and cross-group equivalency of scales.

DEFINING PERCEPTIONS OF AGING

Construct Definition and Theory

"Perceptions of aging" as a research issue can be defined very broadly as beliefs or evaluations regarding characteristics of the aged and the process of aging. Previous research (see studies cited above) suggests several major issues or problem areas which have been the focus of prior investigations and which served as the conceptual focus in initially delimiting the present study.

A first issue concerns perceptions or evaluations regarding characteristics of the aged which are positive or negative. Tuckman and Lorge (1952) began over two decades ago a series of studies indicating that young and old respondents hold distinctive perceptions toward "old age" and "old people". In their many published reports of this investigation they report the following generalizations: (a) negatively stereotyped views of the elderly prevail, regardless of the nature of the populations studied (including undergraduates, psychology graduate students studying aging, supervisors, and older workers themselves); (b) old age is looked upon as a period characterized by economic insecurity, poor health, loneliness, resistance to change, and failing physical and mental powers; (c) these responses are a reflection of cultural expectations regarding the activities, personality characteristics, and adjustments of older people; (d) elderly individuals themselves--especially if institutionalized--tend to subscribe to negative stereotypes even more readily than younger respondents. Although the work of Tuckman and Lorge has been criticized on methodological grounds (Axelrod & Eisdorfer, 1961; Kogan, 1961; Eisdorfer, 1966) subsequent studies have tended to support most of these generalizations (see McTavish, 1971).

A second issue concerns perceptions of functions, competence, or prestige of the aged. Here the level of inquiry has tended to move to broader subgroup or societal unit of analysis, as opposed to the individual level employed in the investigations concerning stereotypes of aging (McTavish, 1971). For example, the pioneering work of Simmons (1945) was based on comparison of ethnographic reports compiled prior to 1940 concerning the status of the aged in various societies. His conclusions (subsequently supported by other investigators such as Shelton, 1965; Cowgill, 1968; Maxwell & Silverman, 1971; Cowgill & Holmes, 1972) suggest that older people have high status and receive difference in proportion to the amount of knowledge or information they possess

that is considered useful to the group. Particularly in societies with few individuals surviving into old age such as traditional or premodern societies, institutionalized mechanisms for utilizing the services of the few aged can be seen. The argument of an inverse relationship between modernization and prestige of the elderly are contested by other data (Harlan, 1964; Bengtson, Dowd, Smith, & Inkeles, 1975). A separate, but conceptually related, issue is the competence of the aged in work and self-maintenance behaviors. Several scales, notably the Tuckman and Lorge instruments on older people and older workers (1952, 1953), have addressed the task competence of the aged. But some efforts to evaluate functions or competence of the aged have been criticized because some items reflect factual knowledge about the aged rather than attitudes (Brubaker and Powers, 1976). It is evident, however, that an examination of perceptions regarding functions and competence of elderly individuals across social groups remains an important goal of research on perceptions of aging.

Investigations in this area can be closely linked to the theory and observations in an area of social psychology with a long research tradition: person perception and evaluation (Tagiuri, et al, 1958; Heider, 1958; Bruner, 1958; Nardi, 1973). We perceive other persons in terms of social categories. Person perception thus involves categorization (de-individuation--how is this person similar to others I have known?) and prediction of future behavior based on that information (because of these characteristics, he will--or he should--do such-and-such) (Bruner, 1958). Unfortunately, despite the rich potential for developing gerontology-specific research based on broader theoretical traditions, little of the work on perceptions of aging has drawn from the larger tradition of person perception research (for an exception see Nardi, 1973).

In summary, three statements may be made from the body of previous research regarding perceptions of aging by way of nominal definition of constructs appropriate for research investigation. First, perceptions of aging are beliefs which in turn reflect values regarding (a) the respondent's evaluation of characteristics of aged individuals or of the process of aging; (b) evaluations of the place of the aged within society--positions and the status associated with such positions. Second, perceptions of aging are normative, insofar as they express (a) expectations of behavior: predictions of what the aged person is likely to do; (b) prescriptions and proscriptions of what the aged individual

should do or should not do. Third, perceptions of aging may be stereotypic in that (a) they attribute characteristics or behaviors to aggregate of persons, independent of individual differences; (b) such characteristics may be predominantly negative or derogatory reflecting unfavorable evaluation of aging; (c) they may be inaccurate or unfactual (see, for example, the items used in the NCOA national sample reported in Harris, 1975).

In the research reported here, the investigation proceeded in two phases. Our initial concern was to examine the similarities and differences in perceptions of aging across social strata. Two basic reasons prompted this concern. First, such comparisons had not been dealt with systematically in previous research. Age comparisons, for example, have often been based on such disparate groups as college students and institutionalized aged. This type of "availability" sample limits generalizability of findings and validity of comparisons (Brubaker & Powers, 1976). Similarly, data adequate to making reliable ethnic comparisons, seldom available due to sampling constraints, is provided by our sampling design. Second, we expected that differences in sex role socialization, cohort or life-course stage, and subculture would result in theoretically-important variations across social strata in perceptions of aging.

Accordingly, in the first phase of analysis items were selected and operationalized reflecting the two conceptual issues summarized above as construct criteria, and then initial comparisons were made testing hypotheses of cross-stratum contrast on these summated items. This has been the typical mode of previous investigations, relying on construct and face validity of the measurement item as initial criteria for "scalability."

The second stage of this investigation involved a more rigorous evaluation of the measurement procedures, examining evidence of validity, reliability, and dimensional equivalency across the substantive hypotheses concerning contrasts between social strata in perceptions of aging are examined again using the refined measures.

INITIAL METHODS AND PROCEDURES

Sample

The data used in this analysis are from a larger study (N = 1,269) of the opinions, needs, and attitudes of middle-aged and older individuals from three ethnic groups in a large metropolitan area (see Bengtson, Cuellar, and Ragan, 1977; Morgan, 1976, for additional

information on the sample and procedures and the study). An area probability sample was stratified on ethnicity (black, Mexican-American, and white), two levels of socio-economic status (based on the index of Duncan, 1961), and age (45-54; 55-64; 65-74 years). Approximately equal numbers of respondents in each of the 18 (3 x 2 x 3) resulting cells allows for disentanglement of ethnic and socio-economic factors often confounded in cross-ethnic studies. Since the sample derived by this design is not directly representative of the area population two separate weighting procedures are used in some analysis of the data, one when making ethnic comparisons and another for age and sex comparisons. When the ethnic weighting procedure is used, the sample from each ethnic group is multiplied by a factor to represent its population distribution. When the total sample weighting is applied, the resulting sample is representative of the 45-to-74 year old black, Mexican-American, and white combined population of the area.

Data-gathering instruments. Respondents were interviewed on a wide range of topics relevant to theoretical and social policy considerations in aging. Included in the 90-minute interviews (some conducted in Spanish) were 14 items reflecting the respondent's perceptions of aging. Respondents were asked to agree or disagree, or they could volunteer a "depends" answer. The limited response format was chosen because it was believed that less literate or less educated respondents would have difficulty in discriminating among more numerous response categories, as was found in the double-stage pretest involving 90 individuals from the target population.

The perceptions of aging items were selected from an initial pool of 61 questions taken from several prior investigations (Tuckman & Lorge, 1952; Kogan & Wallach, 1961; McTavish, 1971). The items in this pool were selected for inclusion in our instrument by a several-stage process including: (1) consideration of face validity in terms of the conceptual issues discussed above; (2) evidence available of reliability/validity in prior studies; (3) experience in the double-staged pretesting (n = 90) in terms of affording some distribution of responses; (4) interviewer recommendations from pretest experience for rejecting items that were difficult to comprehend by some respondents.

The 14 items (see Appendix A for questions used) anticipated two theoretical groupings that were expected to provide two bipolar dimensions for data analysis. The first eight items were intended to tap positive and negative attributes characterizing the aged. The second six deal with positive and negative functions or roles of the aged. Since a consistent response pattern on positive and negative items would result in essentially a zero-sum problem,

and previous literature had led to a focus on negative perceptions, positive items were recoded so that higher values on items indicated negative perceptions of aging. In the initial analysis to follow, scores are simply summated for the two theoretical groupings in an attempt to measure group differences in (a) attributes of the aged; (b) functions or roles of the aged. A higher score indicates more negative composite perception score. The equal weighting and summation of items is a procedure commonly found in the literature of perceptions of aging (see, for example, Harris, 1975)

Initial Results

In the analysis of the two summated scales, summarized in Table 1, we found overall negative perceptions of aging in all

----Table 1 about here----

categories examined ($\bar{X}$=18.86 for Attributes, $\bar{X}$=11.50 on Functions scale). On both of the scales of perceptions we found a marked similarity of means and standard deviations across social strata. In fact only one comparison of means (55-64 and 65-74 age groups on the Function scale) was statistically significant at the .01 level. Further, it would be noted that the range of means on these two scales is only about one point out of a possible 12-16 point range. In other words, application of our two perceptions of aging scales across social strata produced scores indicating negative perceptions of aging and lacking the anticipated differences across groups.

Although this equivalence of central tendency and dispersion across groups might be accepted at face value and interpreted as a substantively significant finding, the procedure used to this point leave important questions unanswered. The finding of no difference among strata directed our attention to the literature on cross-group measurement techniques. No prior examination has been made of the measurement properties of the instrument employed; it may that a finding of "no difference" across stratum groupings is a function of our particular measurement technique (Baltes & Nesselroade, 1970).

MEASUREMENT CONSIDERATIONS IN CROSS-GROUP COMPARISONS

The assumption of cross-stratum equivalence

In cross-stratum research measures are typically taken from two or more stratum groups, and findings concerning the contrasts or similarities between the groups used to infer contrasting influences operating on various social categories. Recent methodological analyses have addressed problems that may arise from the assumption of equivalence of meaning and dimensionality of scales across groups (Manuel, 1976). The crucial assumption is that "groups in the population differ only in the degree to which they possess a certain attitude and not in structure of the attitude (Jacob, 1971, p.62).

Some research addressing the cross-strata equivalence of scales, employing criteria of reliability and validity, has found in some cases this assumtion is indeed unwarranted. Jacob (1971) demonstrated the non-equivalence of widely-used political efficacy scales across strata, casting doubts on the findings of studies employing them. Kinder and Feeder (1975) examined cross-ethnic reliability of items from the Rotter Locus of Control scale, finding that reliability is adequate for Chicano and White respondents but that the scale does not seem to work in the same way for Black respondents. Other studies have addressed the problem of cross-group equivalency and demonstrated, to the authors' satisfaction, that the dimensionality of items is similar across groups. Baltes and Nesselroade (1970) do this prior to testing maturation and cohort effects in personality measures through time, and Bengtson (1975) in the measurement of values across generations.

However, although much research has presented comparisons by age and sex of scales of perceptions of aging (see reviews by McTavish, 1971; Drubaker and Powers, 1976), there appears to have been relatively little systematic examination of cross-stratum reliability and validity of scales employed. Since we are dealing with age cohorts, sex categories, and ethnic groups which have probably been subject to different socialization experiences, we may expect respondents in these groups to exhibit contrasting attitude structure (Jacob, 1971). Put another way, what we are faced with in applying scales across strata are alternative hypotheses for any differences that may be found. First, observable differences in scores may reflect actual group differences indicating theoretically-important contrasts among strata. Second, any finding may be an artifact of interactions between the group and the measuring instrument, reflecting variations in the way the scale as a stimulus

is perceived and operates in different strata. In order to accept the first hypothesis we must reject the second, establishing dimensional equivalency through maximizing cross-strata reliability and validity of scales.

Criteria of reliability and validity

Several standards have been advanced for assessing reliability and validity (see Campbell and Stanley, 1963; Selitz, et al., 1959 Kerlinger, 1973). Two types of reliability will be examined here. The first is stability or test-retest reliability, evaluated by administering the scale items at least twice to the same respondents and performing rank order correlations of composite scores. This demonstrates that findings are not situation specific and that repeated administrations place respondents in the same relative position on the dimension measured. Second, measurement reliability involves evaluation of the random or error variance found in scale scores. Minimization of error variance and maximization of systematic variance indicates high measurement reliability. Reliability coefficients, for example Cronbach's (1951) alpha, provide an estimate.

While estimates of scale reliability can be established through statistical techniques, it is more difficult to demonstrate validity: the ability to actually measure the underlying hypothetical construct posited by the researcher. Content validity refers to adequate sampling from the universe of meaning of a hypothetical construct. Its evaluation is a matter of logical judgement in light of theoretical concerns (Kerlinger, 1973). Construct validity involves the establishment of underlying theoretical dimensions related to observable phenomena. It may be evaluated through examination of patterns of loading from factor analysis solutions (Kerlinger, 1973).

To give an additional basis for evaluation of construct validity, a sample of Los Angeles County decisionmakers (N = 316), interviewed for another component of the Social and Cultural Contexts of Aging Project, responded to the same set of perception items. These individuals represent a markedly different population than our main sample, and therefore should provide interesting comparison in terms of dimensionality of the perception constructs. If their pattern of factor loadings resembles that of the sample of county respondents, it provides us with even firmer basis for arguing construct validity of scales (Kerlinger, 1973).

Criterion validity, comparing the construct measured with a known, external standard, or with "known groups," will not be dealt with here due to the lack of a clear-cut criterion in the data.

Results: Measurement reliability

The two simple-summed scales, termed Attributes and Functions, have already been shown to have a high degree of similarity in central tendency and dispersion across social categories (Table 1). The next step is examination of internal reliability of these 8- and 6-item scales across the various age, sex, and ethnic stratum groupings. Table 2 presents Cronbach's (1951) alpha coefficients for the scales. Alpha has been demonstrated to be the mean of all possible split-half correlations (Cronbach, 1951) and can be used to assess the degree to which our composite demonstrates systematic or

----Table 2 about here----

true variance relative to error variance. The higher this coefficient, the greater the true variance and the more reliable the scale.

The Attributes scale has reliability coefficients as high as .852 for Mexican Americans, a respectable coefficient. For the oldest respondents and the black ethnic group, however, reliability is only .455 and .469 respectively. Overall it would appear that the Attributes scale measures reliably for some groups (Mexican Americans and whites), not very well for others (65-74 year olds and Black respondents) and moderately well for the rest of the strata.

The six-item Functions scale does not fare as well in terms of their alpha coefficients across strata, ranging from .366 among Mexican Americans to a low .055 among Blacks. This indicates a high proportion of random variance in the composite scores. It is interesting to note that the highest measurement reliability for both scales is found in the Mexican American stratum. Low overall reliability for strata appear both in the 65-74 age group and among blacks, with the four lowest alpha coefficients in these groups.

Stability or test-retest reliability

Measurement stability was evaluated next. Since it was impossible to retest study respondents, we drew an additional sample of 93 undergraduate students and got their responses to the same set of items. Students in two large, lower division sociology classes at the University of Southern California were given the instrument in two administrations approximately three weeks apart. Since there was no problem of comprehension, the student sample was given a slightly more refined response set than the main sample, including four gradations from "strongly agree" to "strongly disagree." The test-retest coefficients evaluate the extent to which the composite scores rank students in relatively the same order from the first to the

second administration of the instrument. Again, the Attributes scale is shown to be the more reliable (.467), followed closely by the Functions scale (.454). In sum it would appear that our scales are in a moderate range of stability reliability comparable to that found for other perceptions of aging scales (Axelrod and Eisdorfer, 1961).

Construct validity

To evaluate construct validity we subjected the fourteen items to factor analysis, limiting the number of factors to two. We would expect the pattern of loadings, indicating underlying dimensionality in a varimax rotated solution, to reflect the groupings in our scales. Since we are dealing with low variance in the response format, a criterion of .38 or above was established to gauge whether an item "loaded highly" on a factor. If we look for the anticipated clusterings in the total sample data (see Table 3), we find that

----Table 3 about here----

the factors abstracted fail to separate items into the expected groupings. Factor 1 is defined by only four items that appear in the Attributes scale, and the second factor is defined by two high-loading questions from the Functions scale. Other items that would be expected to separate onto these factors have very low factor loadings. Evaluation of the pattern of loadings suggests that the dimensions abstracted from the communalities among our items do not correspond with the a priori scales.

Thus, we lack grounds to argue construct validity for the total sample. What, then, is the factor structure across social strata? Are most of the groups similar, with only one or two tending to reflect different dimensions? In order to examine the dimensionality of the items across strata, we duplicated the factor analyses and examined the pattern of high loading items that emerged.

In the nine patterns of factor loadings examined (total sample, 3 age categories, 3 ethnic groups, 2 sex categories), the clusters of high loadings show a high degree of variability by strata (see Table 4). These results suggest a marked lack of construct validity across social strata when

----Table 4 about here----

compared to the similarity of means reported earlier. This finding is the opposite of that reported by Bengtson (1975) in evaluating value dimensions across generations. He found that there was similarity of dimensions, but difference of central tendency among the three generations studied.

Since we are unable to assert construct validity for our scales, it appears necessary to take another approach: to re-evaluate the combination of items into scales based on more empirical grounds. Through further evaluation of the data in terms of reliability and validity, it is possible to delete items and construct theoretically (as well as empirically) suitable scales which operate adequately across social strata.

SECOND STAGE METHODS AND PROCEDURES

Item reduction and new scales

The procedure for selecting items for inclusion in the new empirical scales is as follows: first, examination of the patterns of factor loadings to determine the construct validity; second, a consideration of the face validity and theoretical adequacy of the resulting combinations of items; third consideration of the measurement reliability of any empirically-derived scales; and fourth, an evaluation of the test-retest reliability in the student data.

Since several items in the original 14 item pool loaded significantly on factors in two or fewer strata, these items were considered idiosyncratic and therefore nonviable for inclusion in scales that attempt to maximize cross-strata equivalence. Five items were rejected on this basis from further analysis. In addition, examination of factors seemed to suggest that the determination of cross-strata scales might support two, but probably not three, groupings of items. It was decided on these bases to do another factor analysis of the items, but to include only nine items and to limit the derived factors to two. These factor loadings could then again be examined for evidence of construct validity.

Second-Stage Measurement Analyses

The second factor analysis performed included the items that showed promise of operating across social strata. These items were allowed to rotate to a varimax solution in order to examine the patterning of the two dimensions that emerged across strata of age, sex and ethnicity. A summary of the pattern of high loading items is found in Table 5. If we examine the high loadings

----Table 5 about here----

(.38 or higher), it is apparent that the clusters that separate onto factors are much more consistent than previous found. A cluster of four items (Q23H, Q64D, Q73E, Q73G) appears in four strata, and lowering slightly the criterion of a high loading to .34, includes all four items as "loading highly" in two additional strata. Thus for six of nine strata in the sample, these four

items appear to define a dimension of perceptions of aging. These items appear as the first factor for some strata (e.g., Blacks, Females, 45-54 year olds) and as the second factor for others (e.g., 65-74 year olds, Whites), but regardless of their primacy as a factor, these items appear to form a dimension for most of our nine groups. The exceptions to the clear pattern are Mexican Americans and two younger age groups. In each group one of the defining items failed to load significantly on either factor. These exceptions were not deemed significant, since it was not the same displaced item for all strata, and in all cases the other three items clustered together. These four items, then, were tentatively grouped into a "scale" for further analysis. And, examining the dimensionality that emerges from the sample of decisionmakers, it is noteworthy to see the same set of items emerge as a meaningful grouping for so different a sample. The addition of the decisionmaker sample data gives even stronger basis for asserting the construct validity of these four items as a potential scale.

Further examination of the factor loadings shows another clustering of items emerging for consideration as a potential scale. Five strata have a clustering of three items (Q64D, Q23G, Q73B) on the other derived factor. If we again lower our criterion for a high loading item slightly, three more strata show this same set of three items defining a dimension. For eight of nine groupings, then, we have a consistent clustering of items forming a dimension. In the 55-64 year old group, the remaining category with out this pattern, two of the three items loading together on the second factor, but the third (Q64E) failed to load on either factor. As with the first grouping of four items, this cluster of three items is again supported by examination of the loadings from the sample of decisionmakers (See Table 5). These items will also be dealt with as a tenative scale for further analyses of cross-strata equivalency.

Now that two sets of items have been separated onto dimensions that are consistent across strata, it becomes crucial to examine the face validity of the groupings as evidence of construct validity. Since our selection of items derived from numerical, not theoretical, grounds, it is necessary to examine the meaning of our items to justify our empirical scales as sensible and interpretable composites. The first dimension contains the following four items:

1. Most older people are set in their ways and unable to change.
2. Older persons are apt to complain.
3. Older people are often against needed reform in our society because they want to hang onto the past.
4. Most older people spend too much time prying into the affairs of others.

These items, all taken from the original Attributes scale, are the four items originally included as negative statements about the aged. Two of the items have to do with the fixity of characteristics of older people, and two relate to nuisance traits of complaining and prying. These four items, all clearly negative and stereotypic, seem to have a high degree of face validity and will be referred to as Negative Attributes of Old Age.

The second clustering of three items contains the following:

1. Older people can learn new things just as well as younger people can.
2. In most jobs, older people can perform as well as younger people.
3. Most older people can do a job as well as younger persons, but they are just not given a chance to show what they can do.

This dimension has connotations of competence, functionality, and continued ability to perform work roles, on the part of older people. In contrast to the previous scale, this dimension contains positive evaluative statements and implies similarity, rather than contrast, between younger and older persons. Our second cluster of three items will be referred to as Positive Potential in Old Age. This separation of statements into positive and negative factors is similar to that found in the research of Kilty and Feld (1976). They also found that positive and negative statements, rather than being at the polar ends of a single dimension, formed separate, orthogonal factors. In sum, there does appear justification for asserting face validity of the empirically-derived scales based on similarity in subject matter and valence of evaluation.

Two additional criteria of evaluation of cross-strata effectiveness of our empirically derived scales remain: measurement reliability (Cronbach's alpha) and stability reliability (test-retest correlations assessed with the student sample). Table 6 summarizes the alpha coefficients for the new scales

---Table 6 about here---

across social strata. It can clearly be seen that the coefficients for these scales, are much more consistent across various groupings in our sample, compared to those found in Table 2. While some of the coefficients are not quite as high as those achieved by some groups on the original Attributes Scale (See Table 2), both scales have moderately high, but more important, highly consistent coefficients of reliability. While our original alpha coefficients ranged from .852 to .055, our new coefficients were all between .458 and .701. With the new item groupings, then, we are measuring with approximately the same degree of error in all strata. Once again, it seems that for the emprically derived scales we have demonstrated a high degree of cross-strata equivalency in terms of measurement reliability.

For our final evaluation of reliability Spearman rank order correlations of the new scales scores were computed in the student sample data. Summated scores for both administrations of the instrument were created for the new, empirically-derived scales of perceptions of aging. Negative Attributes of Old Age achieved a coefficient of .465, and the Positive Potential scale a coefficient of .600. These correlations are as high or higher than those reported earlier on the original scales. With the new grouping of items into two scales the composite scores rank individuals in relatively the same position on both administrations as well as or better than the original perceptions of aging scale groupings.

In sum, the second part of this analysis seems to have succeeded in meeting the goals of scale development across social strata at a much higher level than that achieved by the a priori groupings of items. Through elimination of items that did not meaningfully discriminate across social strata, a coherent pattern of item clusters emerged across social strata. These dimensions were subsequently demonstrated to have face validity, moderate and highly consistent levels of measurement reliability across strata, and better stability reliability. The two new scales,

Negative Attributes of Old Age and Positive Potential of the Aged, met the scaling criteria established earlier in the paper for maximal cross-strata equivalence. This equivalence allows us to reject the possible alternative hypothesis of differences due to interaction of the measuring instrument with social strata. What remains to be considered, then, are the differences or similarities that occur in our sample groupings for the new scales.

RESULTS: CROSS-STRATUM SUBSTANTIVE SIMILARITIES AND CONTRASTS

To evaluate the substantive question of strata variations a three-way analysis of variance was performed, with Negative Attributes and Positive Potential scales as dependent variables and age, sex and ethnicity as factors. Since the stratified design of the sample as originally drawn provides adequate cells for analysis of variance, it was decided to utilize this design with unweighted data to evaluate strata variation. Results of analysis of variance are summarized in Tables 7 and 8.

---Table 7 about here---

On Negative Attributes of Old Age, the results suggest a high degree of similarity across all stratum groupings (Table 7). The grand mean for the sample on ths scale is 9.10 of a possible range from 4 to 12 (most negative). This indicates predominantly negative evaluations of old age attributes in this sample as a whole.

To what extent are there specific stratum variations from this mean? Contrary to our expections none of the main factor or interaction terms are statistically significant. Moreover the variance explained by our three strata breaks is only 0.5%. These results suggest stratum similarity in negative perceptions of the aged. This finding is similar to the conclusion of "no difference" drawn from the original simple-summed Attributes scale in the first stage of analysis. It is certainly preferable to have established, rather than to merely assume, that the scales provide the basis for valid and reliable comparison among differing groups. No specific test was made of the issue of response set bias in this scale. However, results on the set of Negative Attributes items may indicate variations in willingness to stereotype older people as well as location on a positive-negative continuum of evaluation.

For the Positive Potential scale (see Table 8), the grand mean for the sample is 7.28 of a possible range of

---Table 8 about here---

3 to 9 points (most positive). This is a fairly high over all response, indicating a strong, positive component involved in perceptions of aging (see also Brubaker and Powers, 1976). Moreover, we find that there are some significant strata variations by age, by ethnicity, and in the interaction of these two factors. Strata variation in the Positive Potential scale are most noticeable in the 65-74 year old age category and among Mexican Americans. Both groups were significantly lower in group mean than the other strata categories examined. Although we have evidence for significance of strata variation for this scale, the explained variance is still quite small ($R^2 = .018$).

Discussion

This paper has first focused on some important but difficult methodological issues regarding application of attitude scales across various social strata. Through evaluation of a pool of items, we have defined a pair of scales that appear to reliably measure two orthogonal dimensions with respect to the general question: how does one conceptualize and operationalize perceptions of aging? The two dimensions reflect Negative Attributes and Positive Potentials of the Aged. Moreover, these scales appear to meet criteria for cross-stratum equivalence in measuring perceptions of aging.

Several conclusions can be drawn from the methodological considerations investigated here. First, we suggest that more stringent examination of measurement properties of scales prior to evaluation of differences or similarities among groups may provide some resolution to the myriad of disparate findings regarding perceptions of aging and other attitude realms.

In cross-stratum administration of scales investigators must remain constantly aware of the two alternative hypotheses associated with application of standard measures. On the one hand, there may be differences that in fact exist between groups and should be the focus of meaningful, theoretical interpretation. On the other, the findings may be artifacts of measuring instru-

ments that fail to operate equivalently in the groups being compared. In the latter situation we cannot interpret any results as representing "true" strata comparisons.

A second conclusion, however, is that concern with reliability and validity across social strata is a double-edged sword. We may be able to develop scales that are highly reliable and valid for a particular group, but be unable to apply the scale elsewhere with the same degree of success. In order to develop instruments that can provide us with comparable information on variations groups in the population, it may be necessary to create an instrument that is less than perfect for any one group but that is capable of operating equivalently across numerous social contexts. This loss of precision for one or a few groups is, however, more than counterbalanced by the stronger basis provided for evaluating true differences among them.

This leads to a third consideration, one that perhaps has the least clear-cut solution: the problem of justifying either theoretically or empirically-based groupings of items into a scale. Although the focus here has been on empirical aspects of scaling, it is the authors' contention that the development of adequate scaling of the perceptions of aging can only be achieved through careful attention to theoretical concerns. Empirical evaluation of attempts at scaling is useful only insofar as we can meaningfully interpret the results of such an analysis. Heise (1974) has cautioned that almost any factor analysis solution, however arbitrary, can be assigned "meaning" by experts, whether or not any meaning inheres in it, and that statistical analysis and measurement models are in danger of becoming sterile without more close association with theoretical concerns. For these reasons it is apparent that continued attention to both theoretical and empirical concerns is crucial to the success of future research on the perceptions of aging.

SUMMARY

This paper has examined the cross-stratum applicability of scales to measure the perceptions of aging. Two initial scales, one focusing on Attributes of the Aged and the other Functions or Competence of the Aged, were found surprisingly, to have no significant difference in central tendency across strata of age, sex, and ethnicity. While this finding might be taken as evidence of similarity of attitudes across widely divergent groups, further analyses of the reliability and validity, most especially the lack of construct validity, across strata,

convinced the authors that the initial item-combinations should be reexamined for underlying dimensionality.

The results of factor analysis revealed two groups of items that appear to form dimensions of perceptions of aging for all of the groups studied. These new scales, Negative Attributes and Positive Potential of the Aged, were then further examined and found to have much more consistent measurement reliability and higher test-retest reliability than the initial scales. In addition, they meet the criteria of face validity in sharing an underlying conceptual similarity among items in the new scales.

The new scales were then analyzed for evidence of strata variation. No significant differences were found for the Negative Attributes scale, but significant age, ethnicity and interaction factors were found for the Positive Perceptions of Aging scale.

Two general sets of conclusions may be drawn from this analysis. The first concerns the necessity for more explicit examination of the measurement properties of items and scales that purport to measure "perceptions of aging," focusing not only the construct validity, reliability, and dimensionality of the items in the total sample pool but also assessing these issues across sub-groups or social strata. Prior to testing substantive hypotheses concerning whether aging is perceived differently by various age cohorts or ethnic groups, it is necessary to justify the assumption that these groups are reacting to common stimuli in making their evaluations. These considerations led to the development of two scales, a four-item "Negative Attributes of Old Age" and a three-item "Positive Potential in Old Age" set. These scales are orthoginal dimensions, from which factor scores were constructed for testing cross-stratum contrasts.

The second set of conclusions based on scales demonstrating cross-strata equivalency in measurement, are substantive or theoretical. For one thing, there is substantial similarity among various social groups in perceptions of Negative Attributes of the Aged. Evaluations tended overall to be negative. Moreover, there were no differences by age, sex, and ethnicity, with these factors together explaining minimal variation in responses. In contrast, there were significant social stratum variations in the

Positive Potential scale, with the oldest age group (65-74 years) and the Mexican American ethnic group having the lowest evaluations. Overall, however, there is a fairly high level of mean response of this scale, indicating a strong, positive component involved in perceptions of aging.

TABLE 1

Means and Standard Deviations for Summated Perception Scales

		Attributes of the Aged		Functions of the Aged	
		$\bar{X}$	S.D.	$\bar{X}$	S.D.
Age:					
	45-54	18.284	5.549	11.606	3.625
	55-64	19.076[1]	6.253	11.164	2.810
	64-74	19.373	6.169	11.814	3.338
Sex:					
	Male	18.493	6.324	11.272	2.890
	Female	19.085	5.770	11.639	3.491
Ethnicity:					
	Black	18.636	6.572	11.683	3.662
	Mexican Amer.	18.648	5.719	11.734	3.199
	White	18.886	5.984	11.474	3.266
TOTAL		18.860	5.991	11.499	3.279

[1] 55-64 vs. 65-74 $t = -.2.914$ $p = .01$

TABLE 2. α Reliability for Theoretical Scales by Strata

	Attributes of the Aged	Functions of the Aged
Age:		
45-54	.658	.220
55-64	.692	.180
65-74	.455	.108
Sex:		
Male	.624	.240
Female	.614	.141
Ethnicity:		
Black	.469	.055
Mexican American	.852	.366
White	.819	.168
TOTAL	.502	.209

TABLE 3. Varimax Rotated Factor Loadings - Total Sample (N = 1269)

Question	Factor 1	Factor 2
23 H - Set in ways/Unable to change	.59782	.11931
73 G - Spend time prying	.56803	-.02490
64 D - Apt to complain	.43930	-.02522
73 E - Against reforms/hang onto past	.40713	.19219
73 F - Most in good health	.13005	.09025
73 D - Become wiser with old age	-.09357	.22272
64 C - Not isolated or lonely	.17061	-.02522
64 E - Can learn as well as young	.15608	.37653
73 B - Can do job as well/no change	.05315	.78885
23 G - In jobs, can perform as well	.08751	.49433
73 J - Not useful to self/others	.26396	.11560
73 H - Valuable for experiences	.04613	.04315
23 J - Treated like children	.33168	-.03111
64 F - Can't find job, willing to work	-.03498	-.10927

TABLE 4. Items Loading Highly (.38+) on Factors by Strata
(Initial Solution, Varimax Rotation)

QUESTION	Factor	Total 1	Total 2	45-54 1	45-54 2	55-64 1	55-64 2	65-74 1	65-74 2	Male 1	Male 2	Female 1	Female 2	Black 1	Black 2	Mexican American 1	Mexican American 2	White 1	White 2
23H	Set in ways/unable to change	.598		.402		.563		.654			.669	.584		.708		.685		.573	
73G	Spend time prying	.560		.423		.689		.534			.503	.722		.696		.611		.531	
64D	Apt to complain	.439		.551			.411	.473								.516		.458	
73E	Against reforms/hang onto past	.407				.480		.422			.399		.432	.641				.428	
73F	Most in good health						.384												
73D	Become wiser with old age				.407										.454				
64C	Not isolated or lonely																		
64E	Can learn as well as young				.521		.429		.463	.537			.391		.543				
73B	Can do job as well/no chance		.789		.700				.402	.684			.571		.407		.718		.793
23G	In jobs, can perform as well		.494		.462				.667	.477			.598				.535		.501
73J	Not useful to self/others					.514						.393		.395					
73H	Valuable for experiences																		
23J	Treated like children			.512										.486		.707			
64F	Can't find job/willing to work																		

TABLE 5. Items Loading Highly (.38+) or Moderately High (.34+) on Factors by Strata in Main Sample and in Decisionmaker Sample (Varimax Rotation)

QUESTION		Total		45-54		55-64		65-74		Male		Female		Black		Mexican American		White		Decision-maker	
	Factor	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
23H	Set in ways/unable to change	.603			.536	.641			.670	.567		.605		.734		.558		.604			.519
73G	Spend time prying	.597			.606	.620			.494	.570		.648		.648		.526		.607			.660
64D	Apt to complain	.415			.474	–			.415	.386		.438		.385		.584		.395			.402
73E	Against reforms/hang on to past	.380			–	.546			.403	.447		.374		.595		–		.371			.460
73B	Can do job as well/no chance		.751	.948			.725	.500			.495		.769		.523		.767		.750	.870	
23G	In jobs, can perform as well		.546	.461			.578	.678			.614		.592		.542		.491		.557	.734	
64E	Can learn as well as young		.367	.474			–	.386			.411		.371		.503		.399		.362	.389	
23J	Treated like children				.408					.368				.379		.696					
73J	Not useful to self/others													.370							

TABLE 6. Alpha Reliability for Empirical Scales by Strata

	Negative Attributes	Positive Potential
Age:		
45-54	.518	.620
55-64	.650	.458
65-74	.580	.473
Sex:		
Male	.543	.514
Female	.607	.550
Ethnicity:		
Black	.701	.518
Mexican American	.620	.554
White	.572	.536
TOTAL	.581	.536

TABLE 7. Analysis of Variance and Multiple Classification Analysis Summary on Negative Perceptions of Aging Scale.

Source	Sum of Squares	DF	Mean Square	F	p
Age	6.635	2	3.318	.656	N.S.
Ethnicity	21.510	2	10.755	2.127	N.S.
Sex	2.450	1	2.450	.484	N.S.
Interaction (Two way)	36.649	8	4.581	.906	N.S.
Interaction (Three way)	27.116	4	6.779	1.341	N.S.

STRATA DEVIATIONS FROM GRAND MEAN

Grand Mean = 9.10

	Deviation	Eta	Beta
Age:			
45-54	-.07		
55-64	-.03		
65-74	.10	.03	.03
Sex:			
Male	-.05		
Female	.03	.02	.02
Ethnicity:			
Black	.07		
Mex. Amer.	.10		
White	-.19	.06	.06

$R = .069$

$R^2 = .005$

TABLE 8. Analysis of Variance and Strata Mean Deviations (MCA) on Positive Potential of Aging Scale

Source	Sum of Squares	DF	Mean Square	F	p
Age	26.599	2	13.299	4.253	.014
Ethnicity	40.216	2	20.108	6.430	.002
Sex	5.142	1	5.142	1.644	N.S.
Age X Ethnicity	53.024	4	13.256	4.239	.002
Age X Sex	4.236	2	2.118	.677	N.S.
Ethnicity X Sex	17.811	2	8.905	2.848	N.S.
Interaction (Three way)	5.792	4	1.448	.463	N.S.

STRATA DEVIATIONS FROM GRAND MEAN

Grand Mean = 7.28

	Deviation	Eta	Beta
Age:			
45-54	.10		
55-64	.11		
65-74	-.20	.08	.08
Sex:			
Male	-.08		
Female	.05	.10	.10
Ethnicity:			
Black	.21		
Mex. Amer.	-.23		
White	.04	.04	.04

$R = .134$

$R^2 = .018$

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APPENDIX A: Questionnaire Items*

Attributes Characterizing the Aged or Elderly

23H	Most older people are set in their ways and unable to change.
64C	Most older people are not isolated.
64D	Older persons are apt to complain.
64E	Older people can learn new things just as well as younger people can.
73D	People become wiser with the coming of old age.
73E	Older people are often against needed reform in our society because they want to hang on to the past.
73F	Most older people (in this country) are in good health.
73G	Most older people spend too much time prying into the affairs of others.

Functions or Competence of the Aged

23G	In most jobs, older people can perform as well as younger people.
23J	Elderly people are often treated more like children than like adults who can make their own decisions.
64F	Many older people cannot find a job even though they want to work.
73B	Most older people can do a job as well as younger persons but they are just not given a chance to show what they can do.
73H	Older people are valuable because of their experiences.
73J	Older people are not very useful to themselves or others.

*Response alternatives: "Agree" or "Disagree". "Depends" or "Neither Agree nor Disagree" when volunteered by respondents were coded in an intermediate category, while "don't know" or "no opinion" responses were omitted from analysis. As indicated, items were recoded in this analysis to reflect negative orientations.